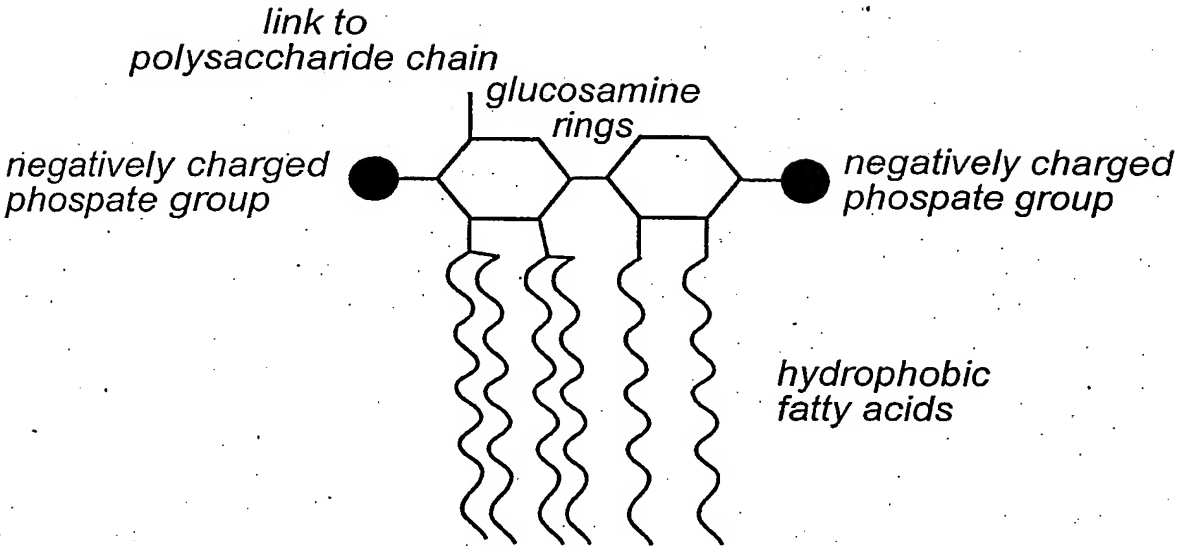

link to
polysaccharide chain
glucosamine
rings
negatively charged
phospate group
negatively charged
phospate group
hydrophobic
fatty acids

Fig. 1

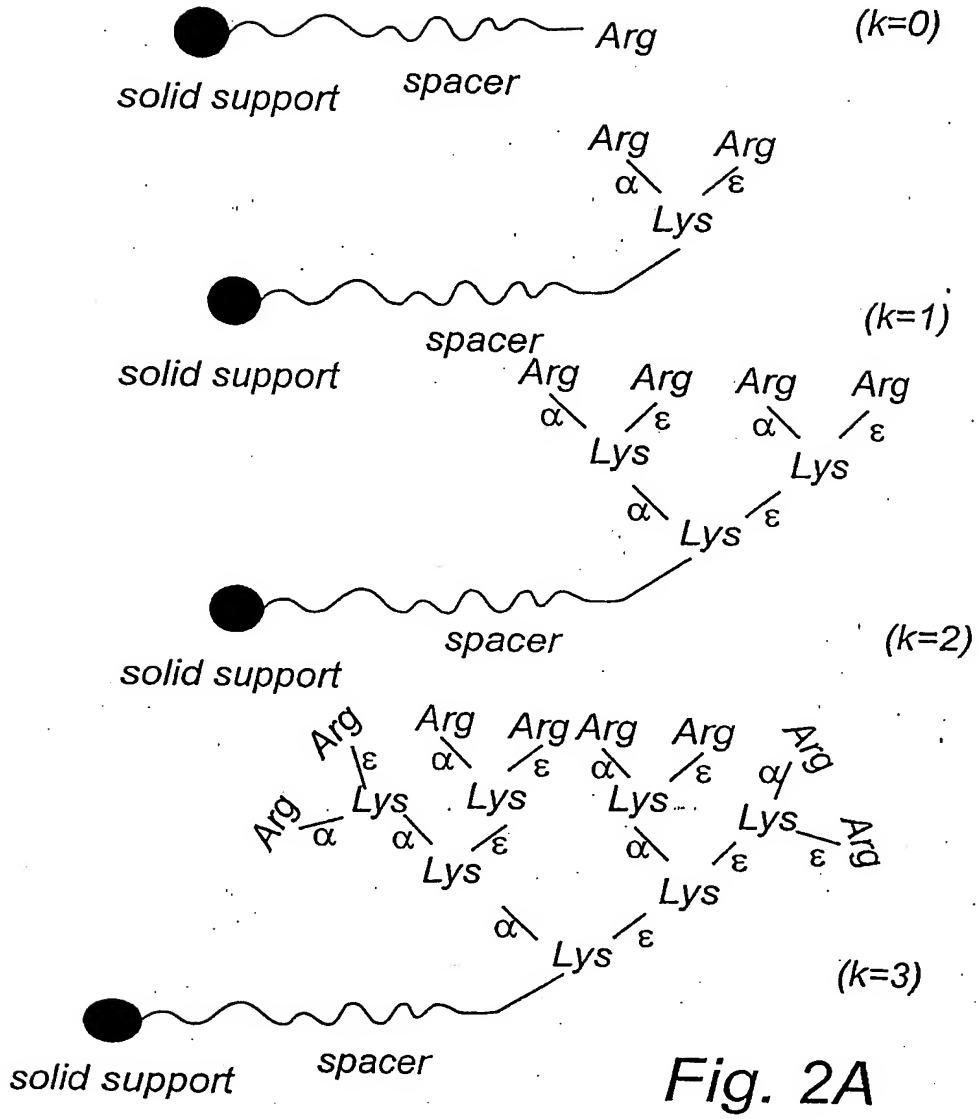

Arg
(k=0)
solid support
spacer
Arg
Arg
α
ε
Lys
spacer
(k=1)
solid support
Arg
Arg
Arg
Arg
α
ε
α
ε
Lys
Lys
α
ε
Lys
spacer
(k=2)
solid support
Arg
Arg
Arg
Arg
Arg
Arg
ε
α
ε
α
ε
α
Arg
Lys
Lys
Lys
Lys
Arg
α
α
ε
α
ε
ε
Lys
Lys
α
ε
Lys
(k=3)
spacer
solid support

Fig. 2A

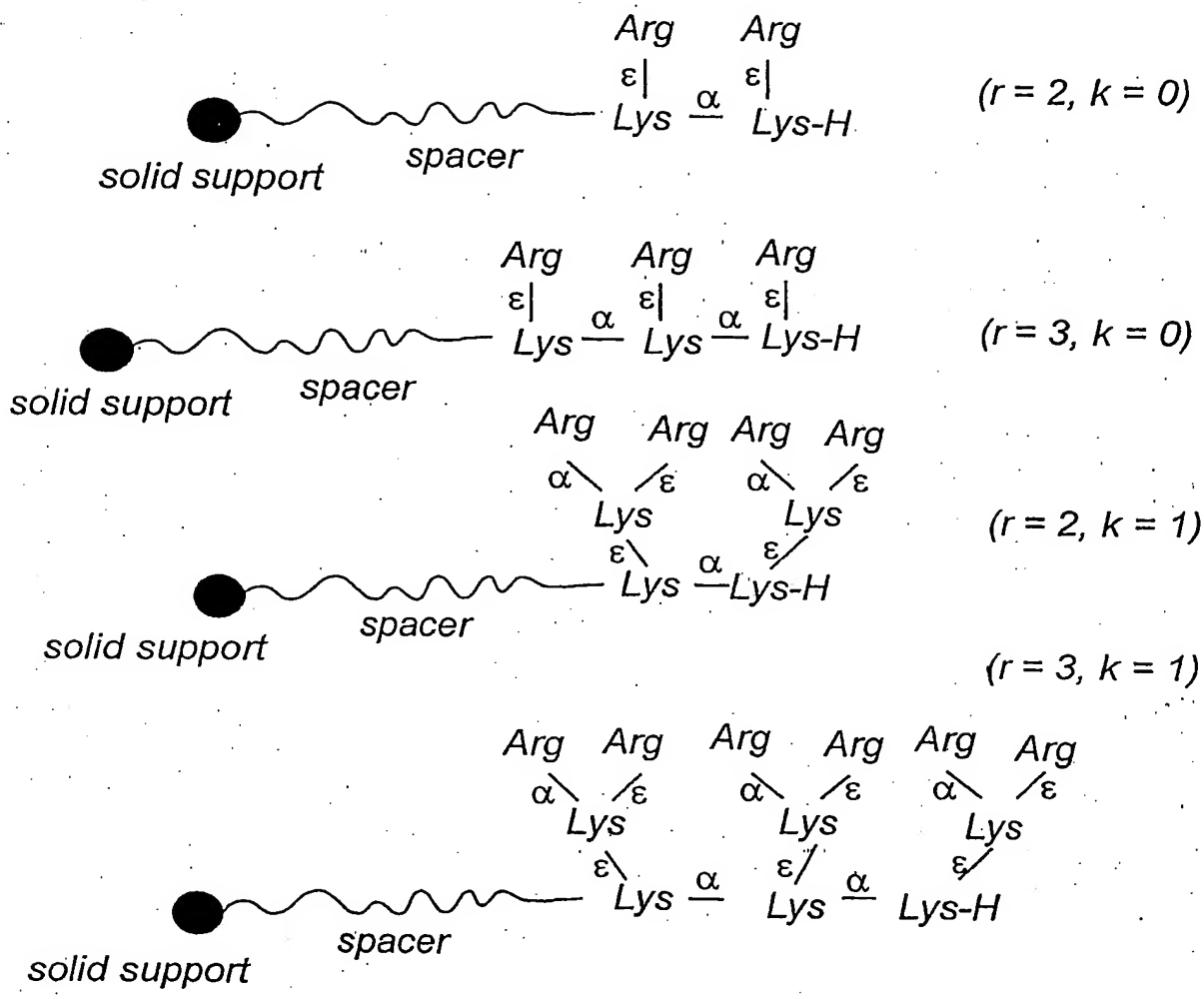

Arg Arg
ε ε
Lys α Lys-H
solid support
spacer
(r = 2, k = 0)
Arg Arg Arg
ε ε ε
Lys α Lys α Lys-H
solid support
spacer
(r = 3, k = 0)
Arg Arg Arg Arg
α ε α ε
Lys Lys
ε ε
Lys α Lys-H
solid support
spacer
(r = 2, k = 1)
Arg Arg Arg Arg Arg Arg
α ε α ε α ε
Lys Lys Lys
ε ε ε
Lys α Lys α Lys-H
solid support
spacer
(r = 3, k = 1)

Fig. 2B

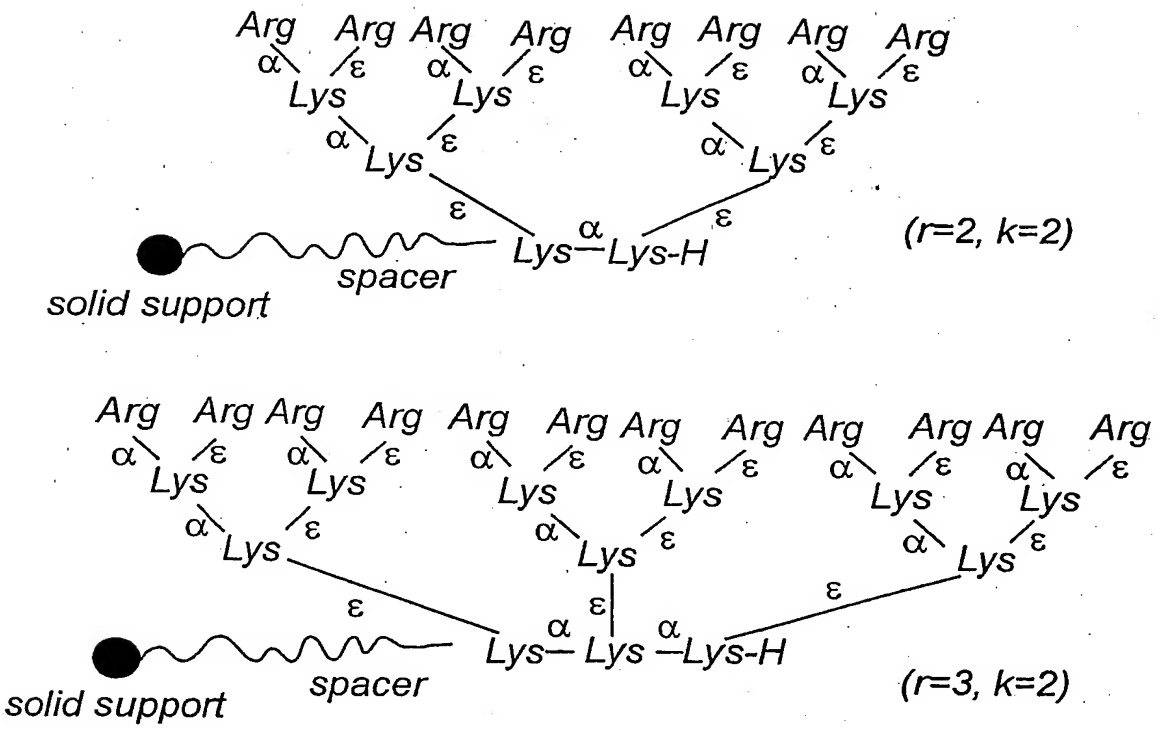

Arg Arg Arg Arg Arg Arg Arg Arg
α ε α ε α ε α ε
Lys Lys Lys Lys
α ε α ε
Lys Lys
ε α ε
Lys—Lys-H
spacer
solid support
(r=2, k=2)
Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg
α ε α ε α ε α ε α ε α ε
Lys Lys Lys Lys Lys Lys
α ε α ε α ε
Lys Lys Lys
ε ε ε
α α
Lys— Lys —Lys-H
spacer
solid support
(r=3, k=2)

Fig. 2B cont.

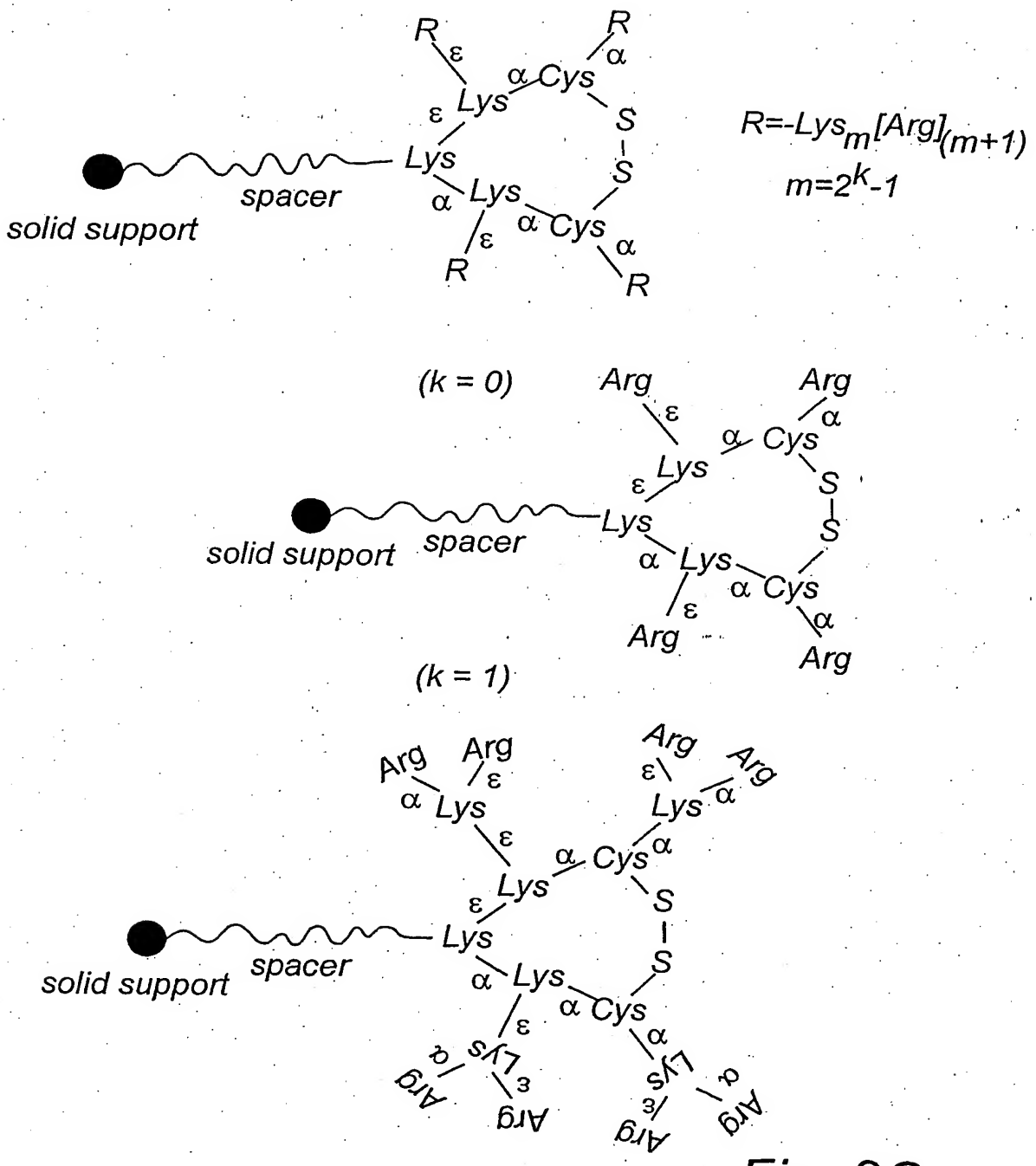


Fig. 2C

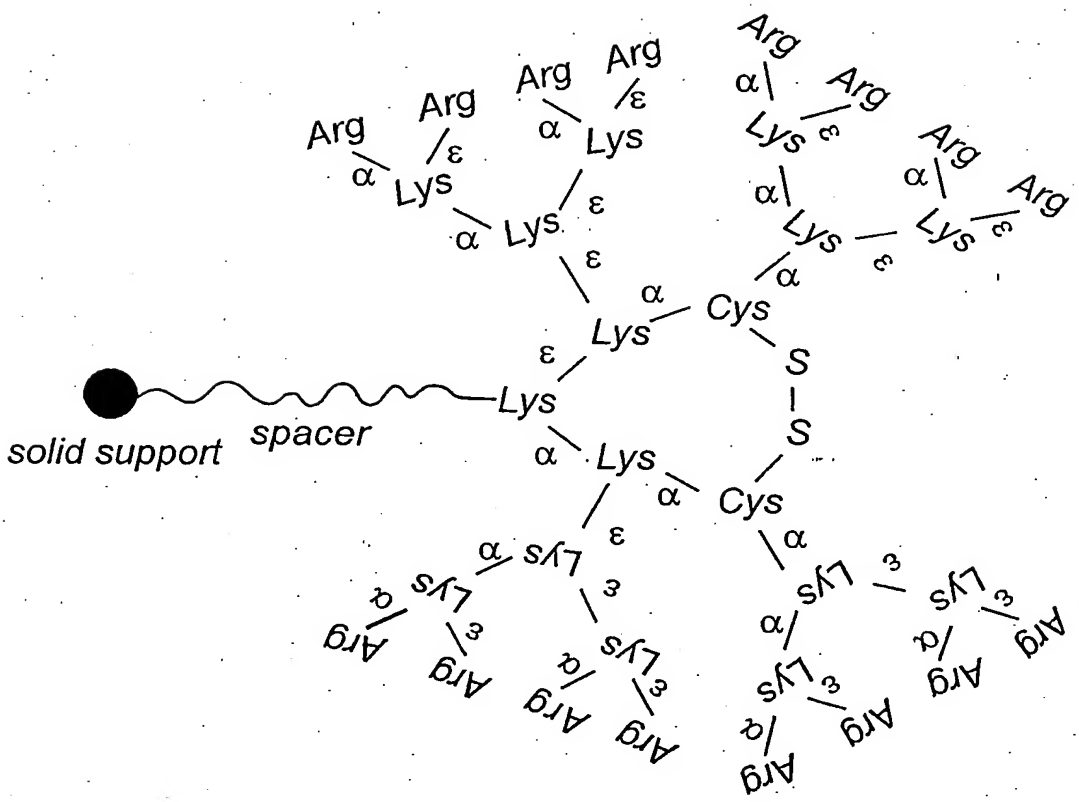


Fig. 2C cont.

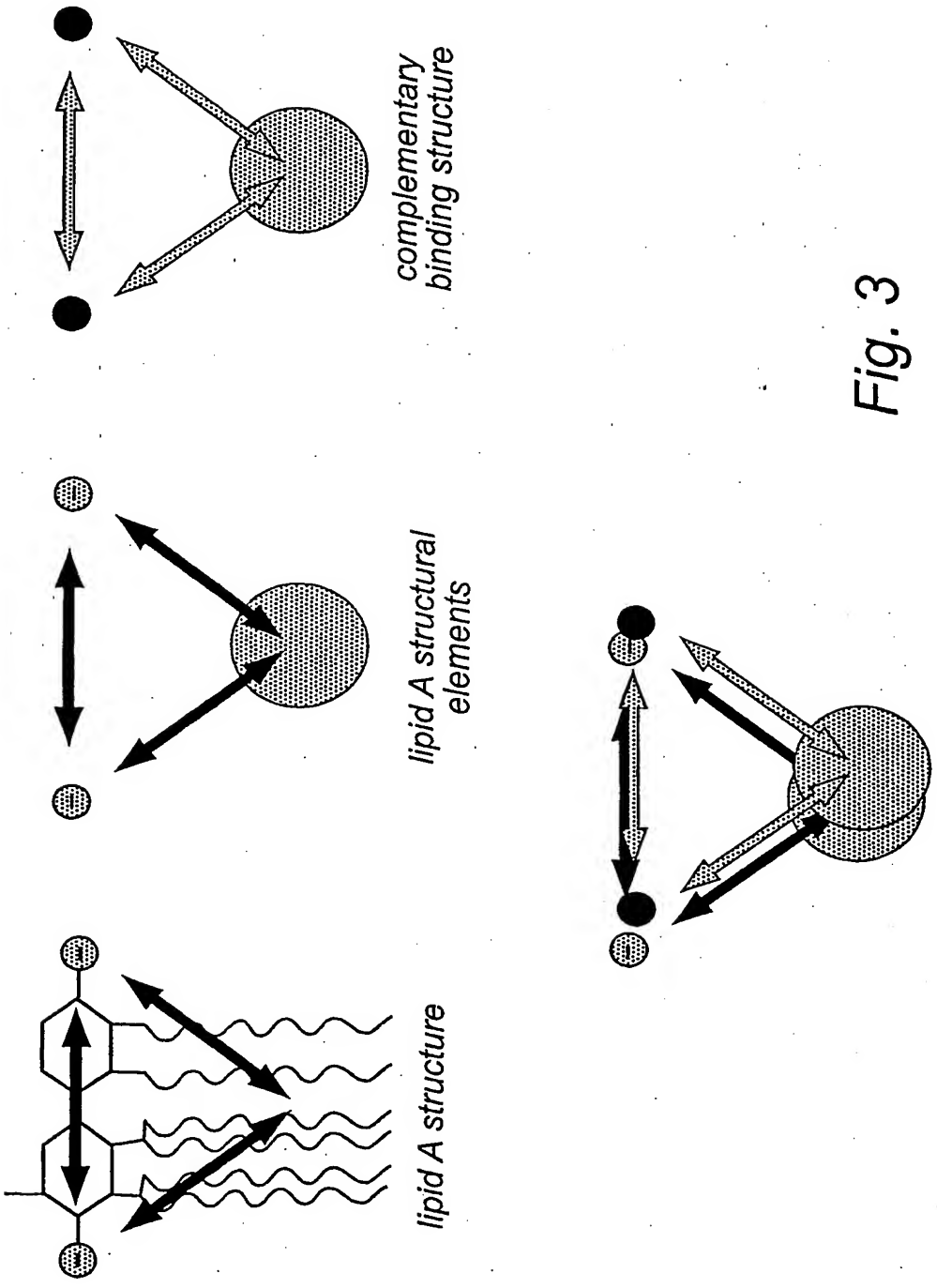

complementary binding structure
lipid A structural elements
lipid A structure

Fig. 3

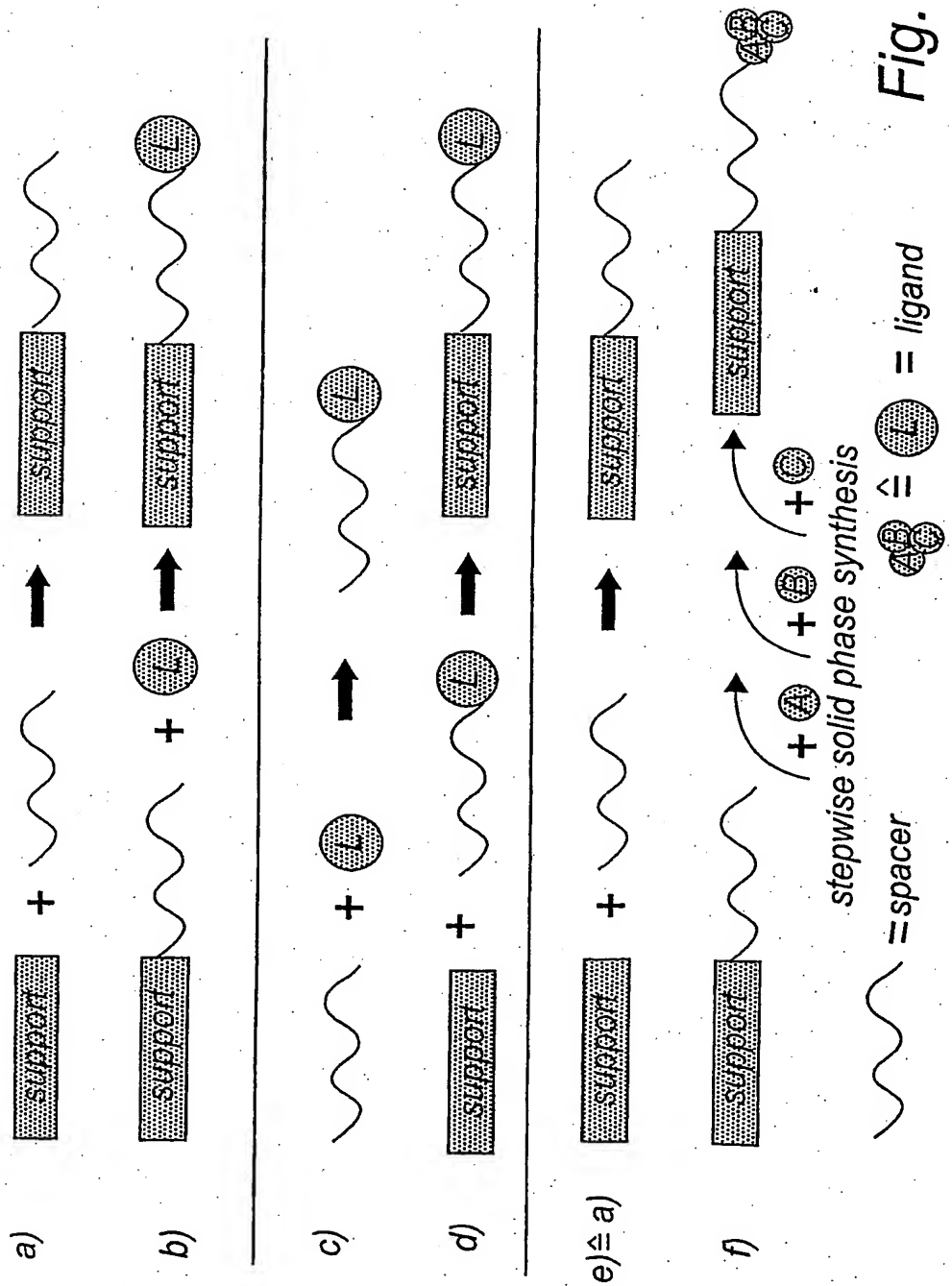

a)
b)
c)
d)
e) ≙ a)
f)
support
L
A
B
C
AB
AC
stepwise solid phase synthesis
= spacer
AB AC ≙ L = ligand

Fig. 4

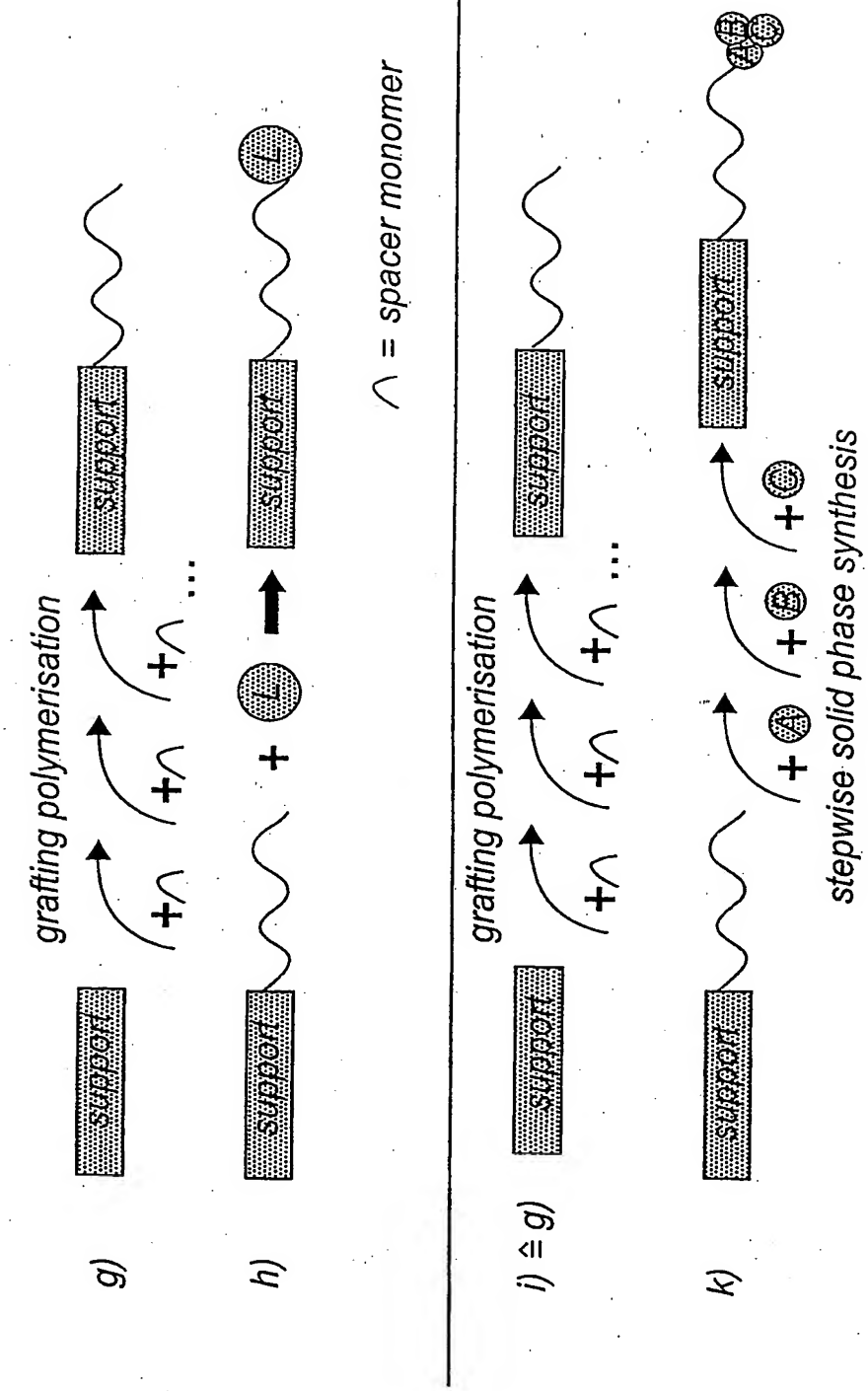

grafting polymerisation
support
g)
h)
L
= spacer monomer
i) ≙ g)
stepwise solid phase synthesis
A
B
C
k)

Fig. 4 cont.

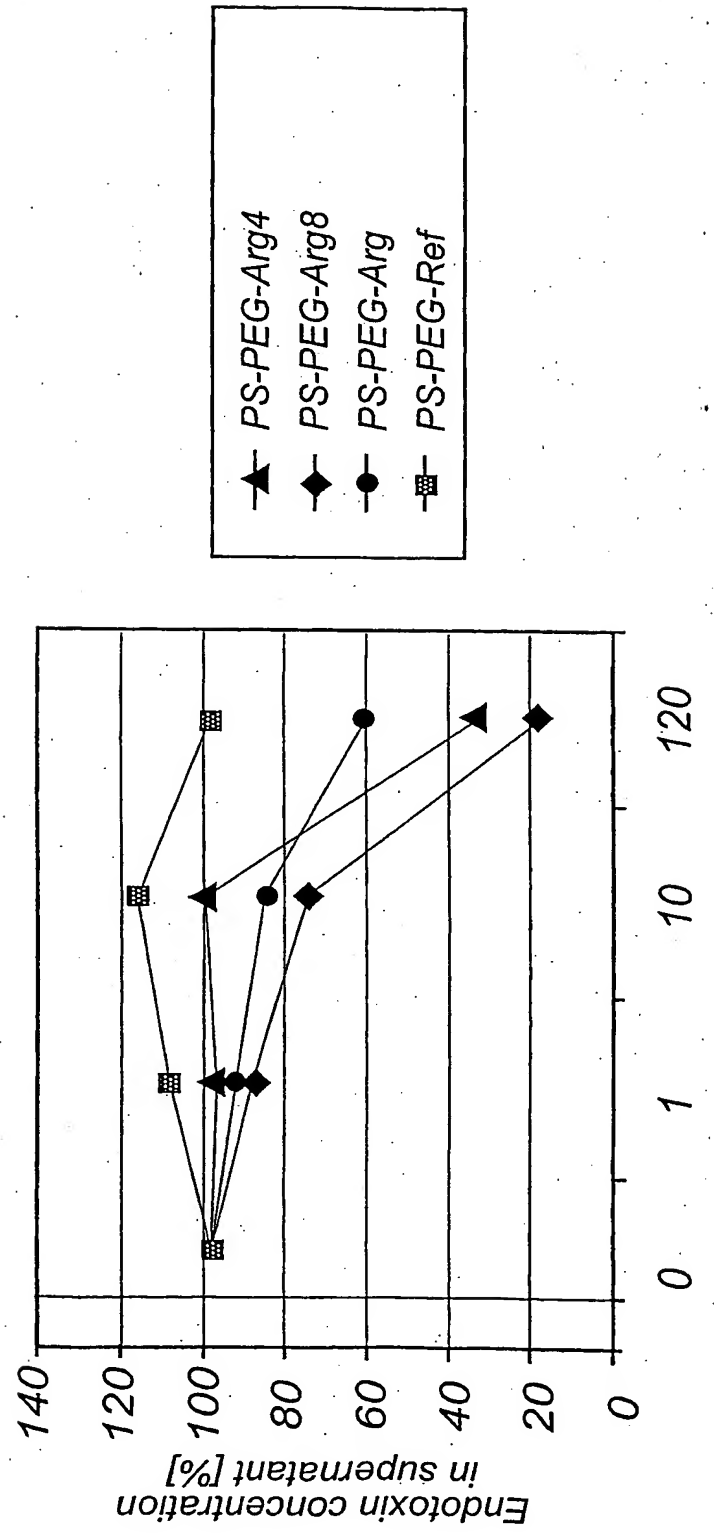

PS-PEG-Arg4
PS-PEG-Arg8
PS-PEG-Arg
PS-PEG-Ref
Endotoxin concentration in supernatant [%]
140
120
100
80
60
40
20
0
0
1
10
120
Incubation time [min]

Fig. 5

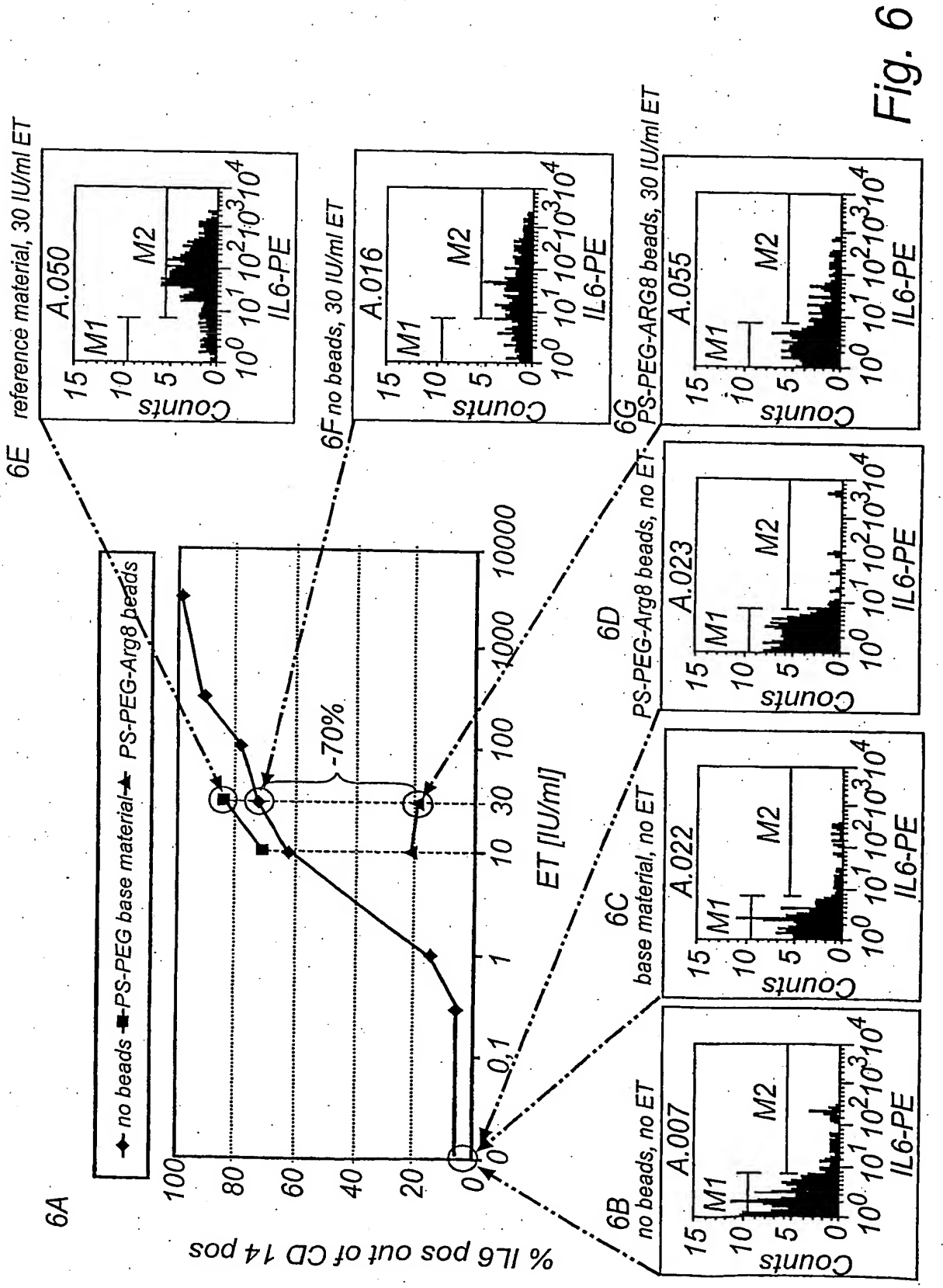

6A
no beads
PS-PEG base material
PS-PEG-Arg8 beads
% IL6 pos out of CD 14 pos
ET [IU/ml]
-70%
6B no beads, no ET
6C base material, no ET
6D PS-PEG-Arg8 beads, no ET
6E reference material, 30 IU/ml ET
6F no beads, 30 IU/ml ET
6G PS-PEG-ARG8 beads, 30 IU/ml ET
A.007
A.022
A.023
A.050
A.016
A.055
M1
M2
Counts
IL6-PE

Fig. 6

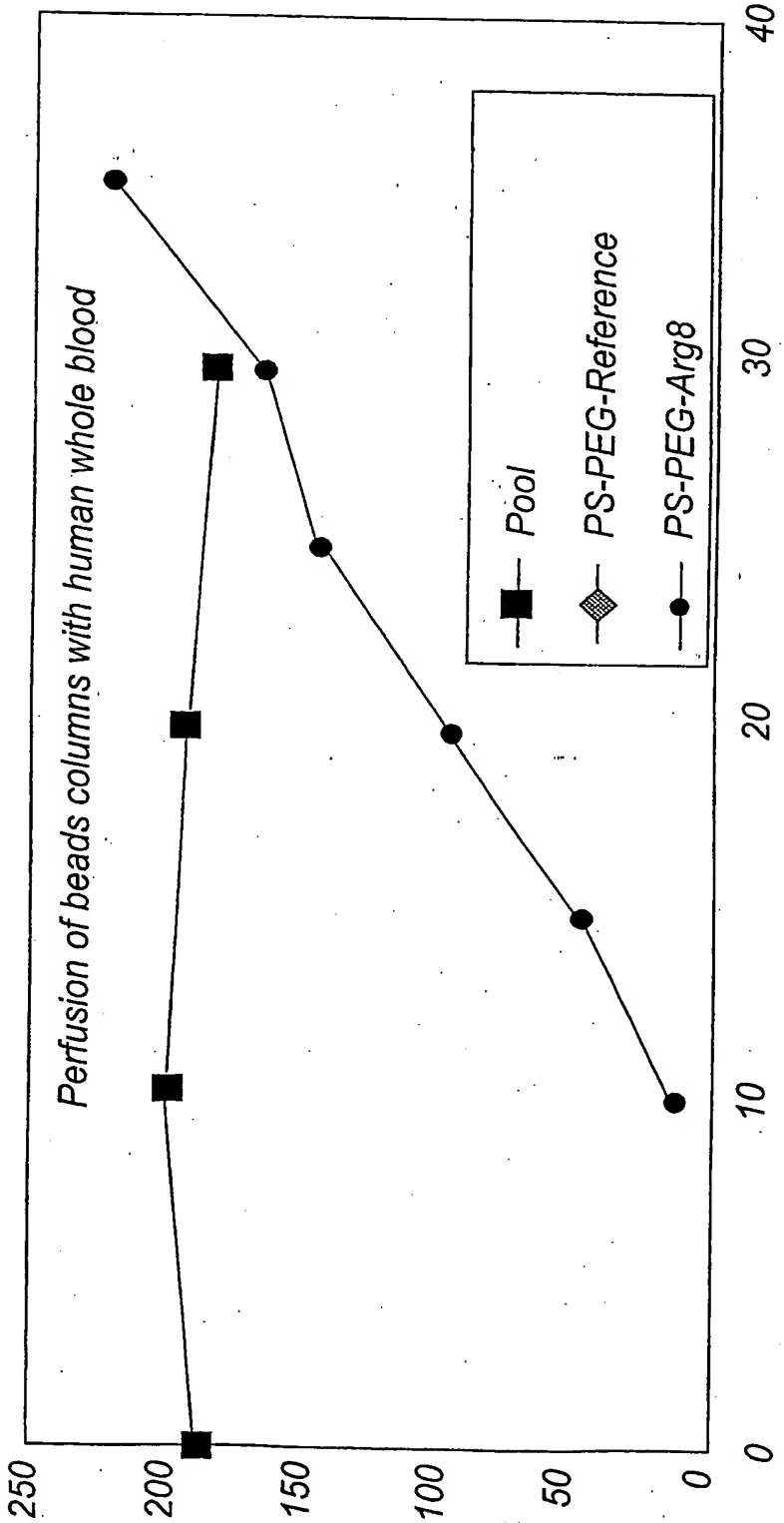

Perfusion of beads columns with human whole blood
250
200
150
100
50
0
0
10
20
30
40
Time [min]
Pool
PS-PEG-Reference
PS-PEG-Arg8

Fig. 7A

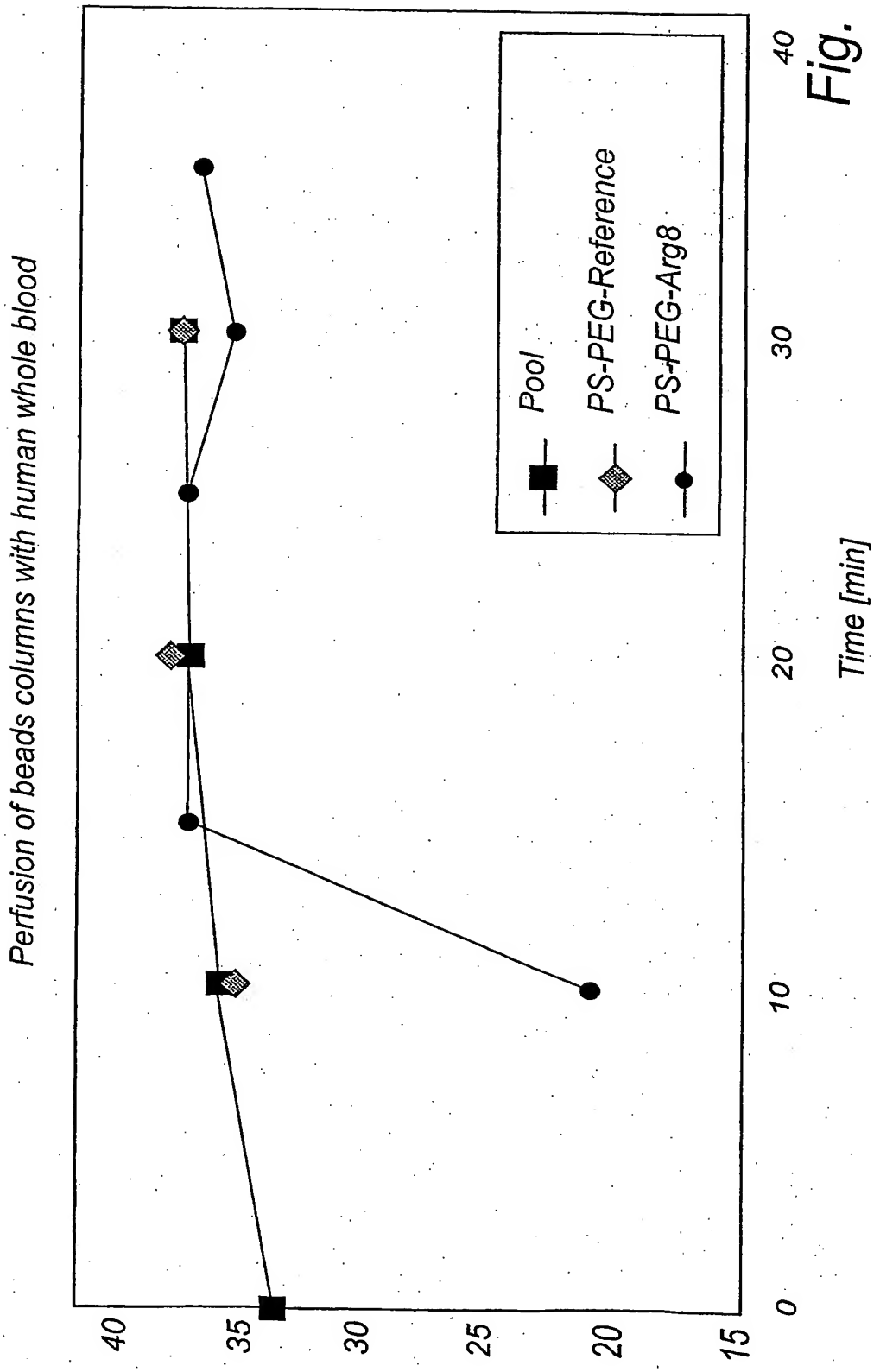

Perfusion of beads columns with human whole blood
Time [min]
Pool
PS-PEG-Reference
PS-PEG-Arg8
40
35
30
25
20
15
0
10
20
30
40

Fig. 7B

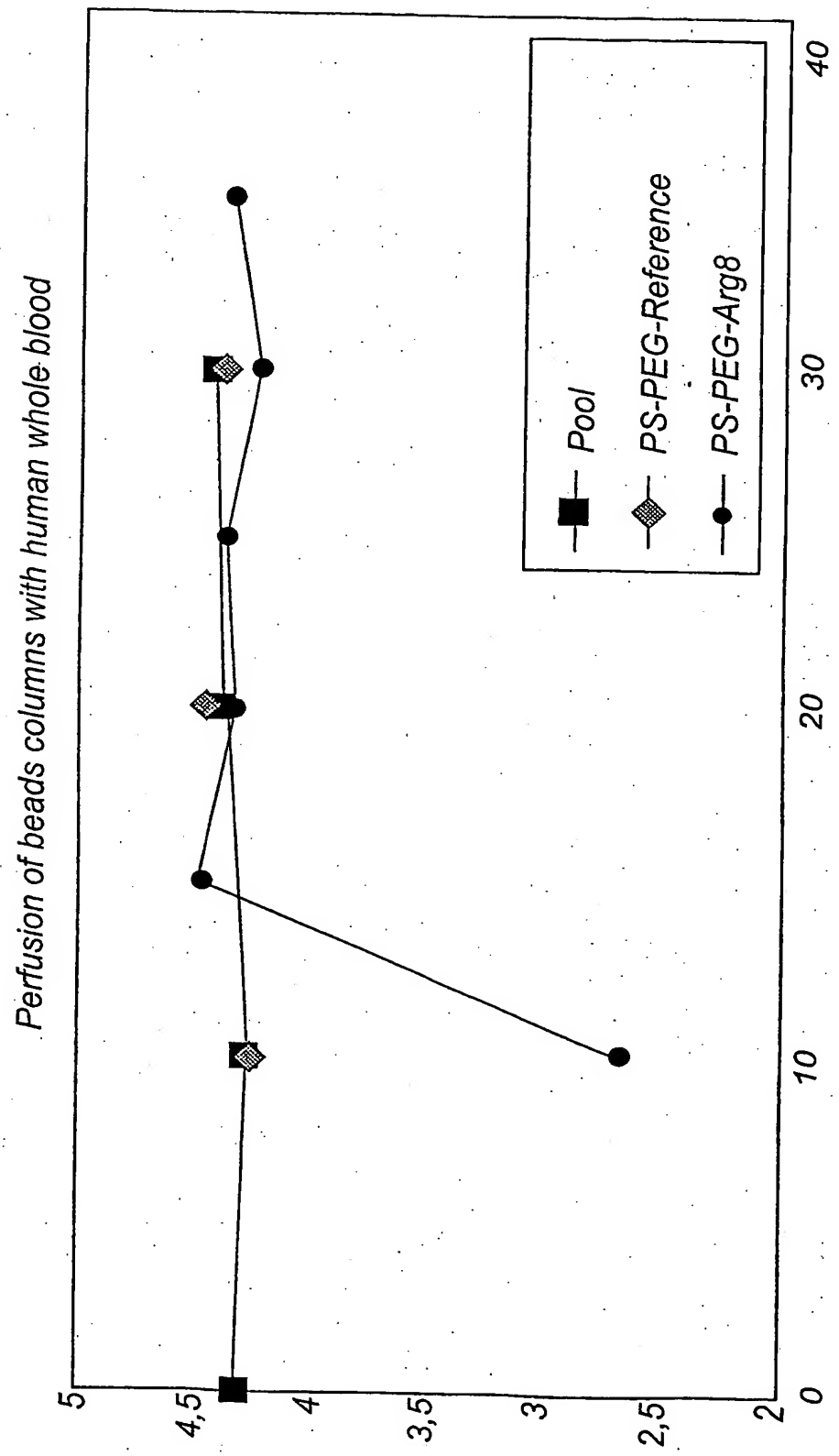

Perfusion of beads columns with human whole blood
Time [min]
Pool
PS-PEG-Reference
PS-PEG-Arg8
5
4,5
4
3,5
3
2,5
2
0
10
20
30
40

Fig. 7C

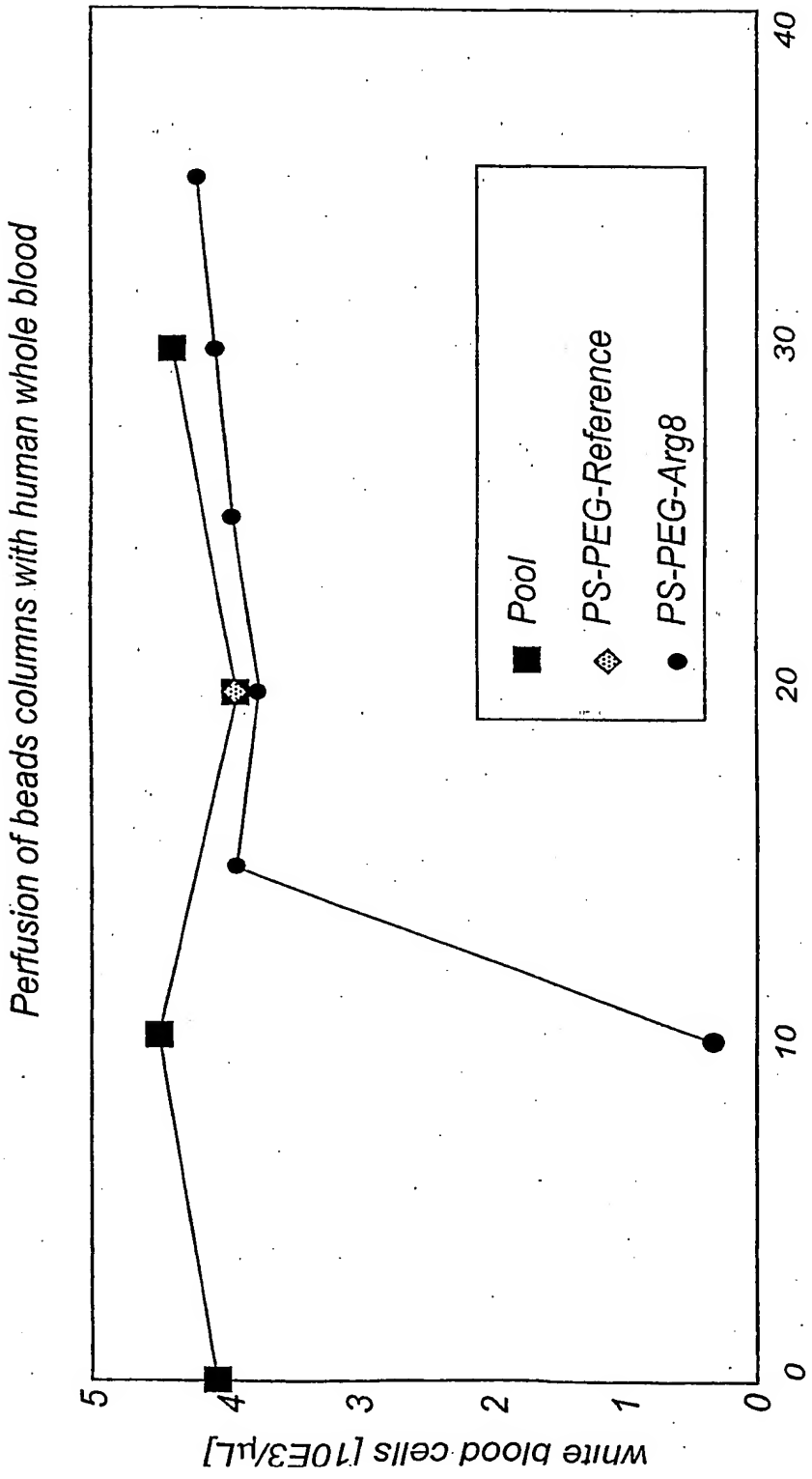

Perfusion of beads columns with human whole blood
white blood cells [10E3/µL]
0
1
2
3
4
5
0
10
20
30
40
Time [min]
Pool
PS-PEG-Reference
PS-PEG-Arg8

Fig. 7D

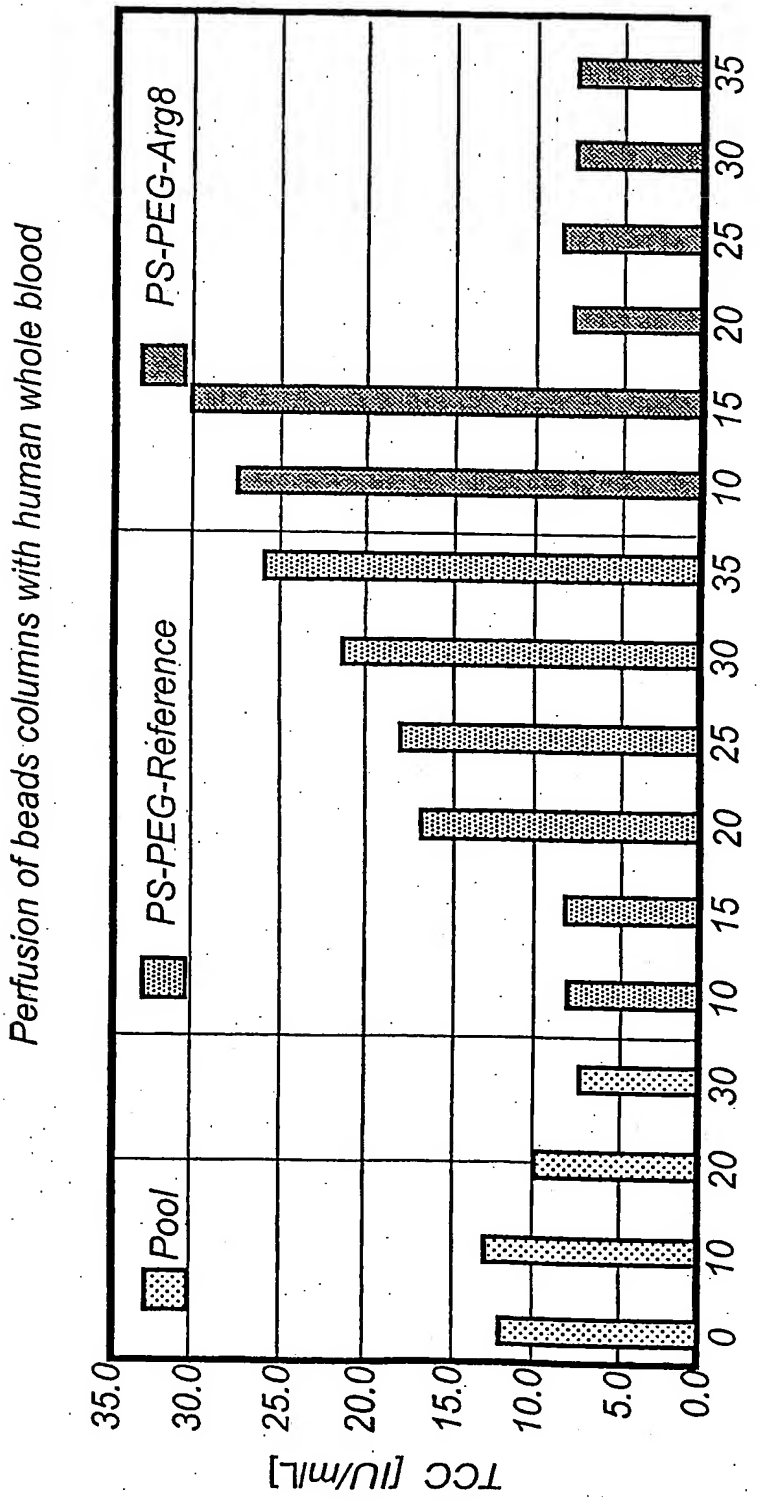
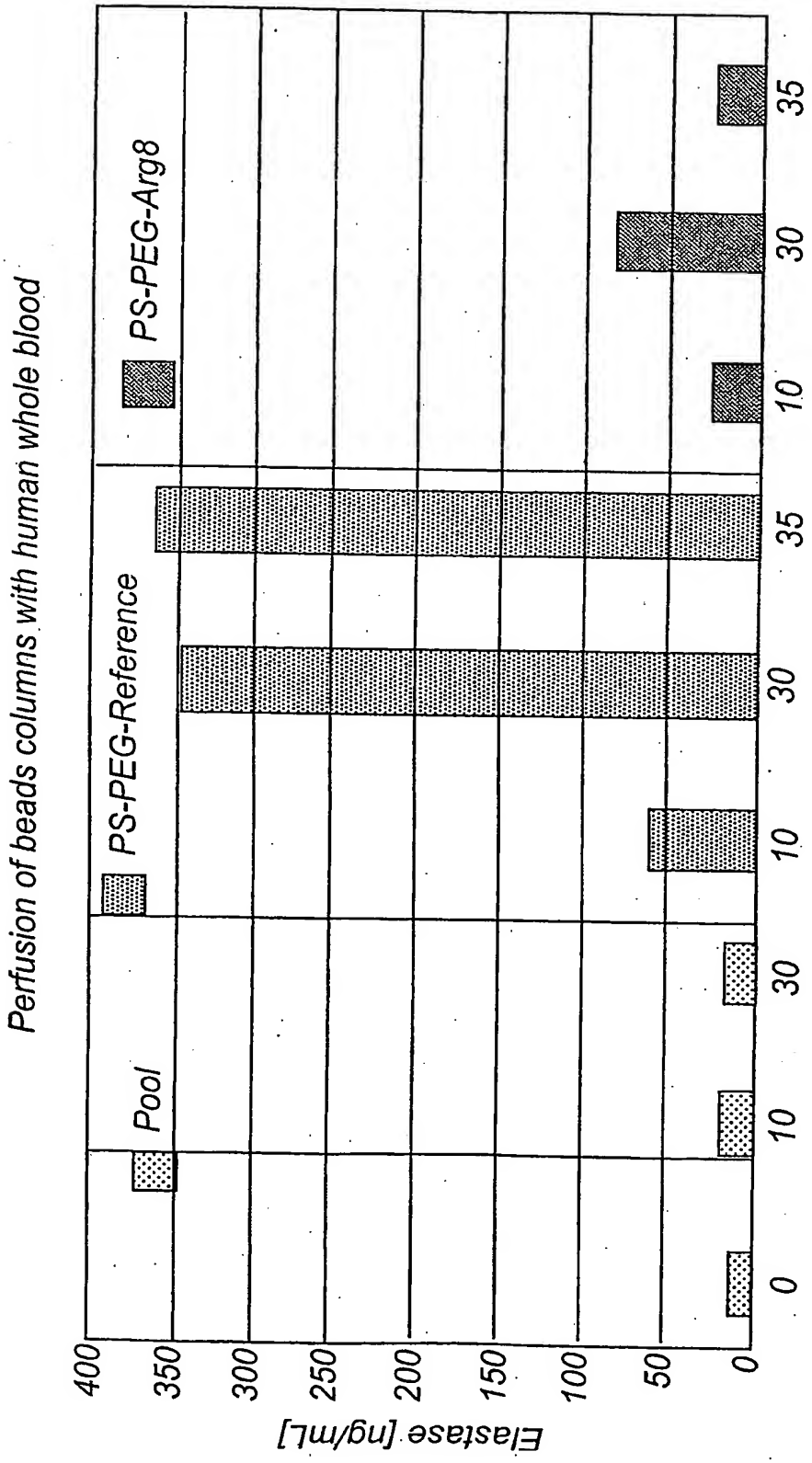

Perfusion of beads columns with human whole blood
PS-PEG-Arg8
PS-PEG-Reference
Pool
TCC [IU/mL]
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0
10
20
30
35
10
15
20
25
30
35
Time [min]

Fig. 8

Fig.


Perfusion of beads columns with human whole blood
Pool
PS-PEG-Reference
PS-PEG-Arg8
Elastase [ng/mL]
0
50
100
150
200
250
300
350
400
0
10
30
35
10
30
35
10
30
35
Time [min]

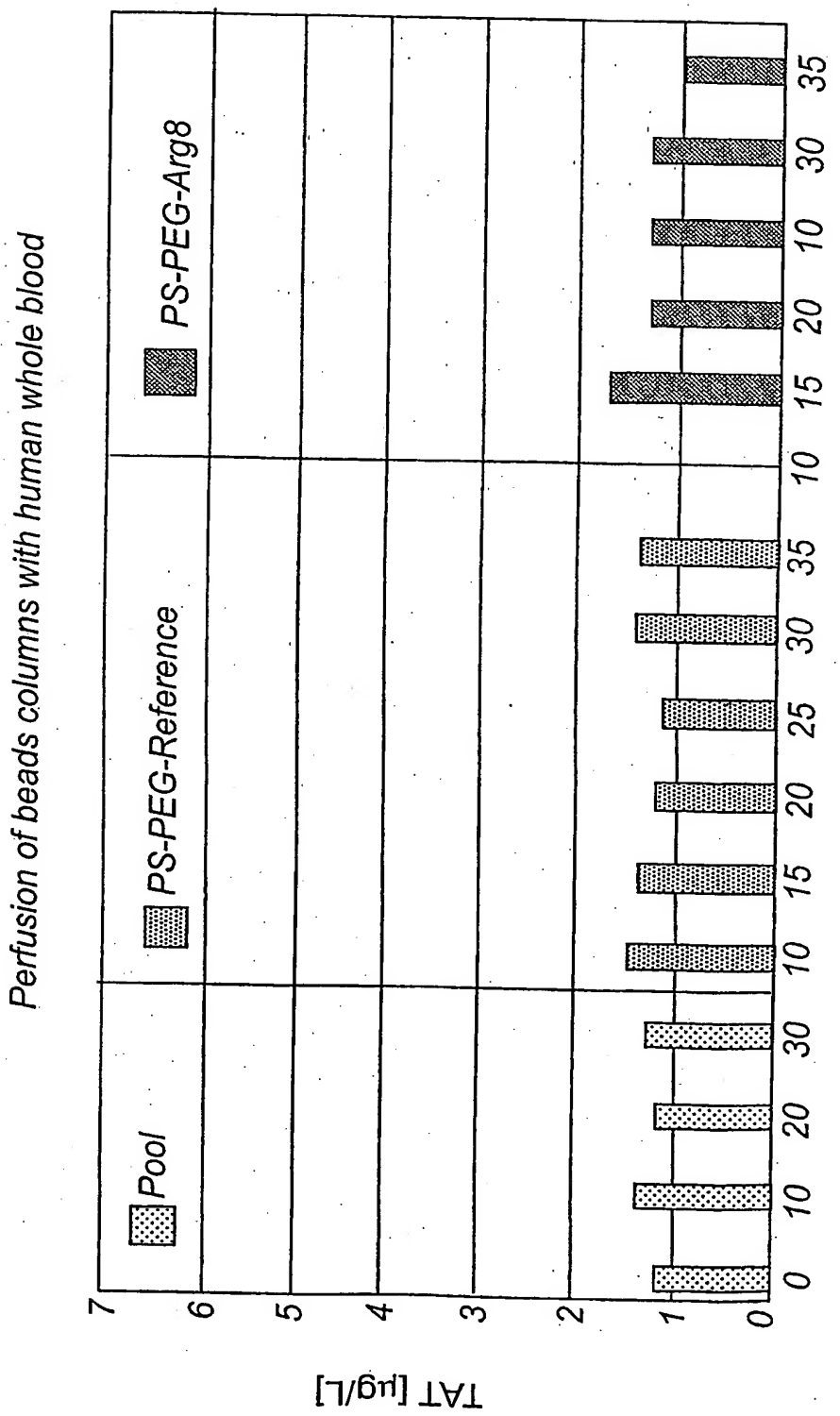

Perfusion of beads columns with human whole blood
Pool
PS-PEG-Reference
PS-PEG-Arg8
TAT [µg/L]
0
1
2
3
4
5
6
7
0 10 20 30 10 15 20 25 30 35 10 15 20 30 10 35
Time [min]

Fig. 10

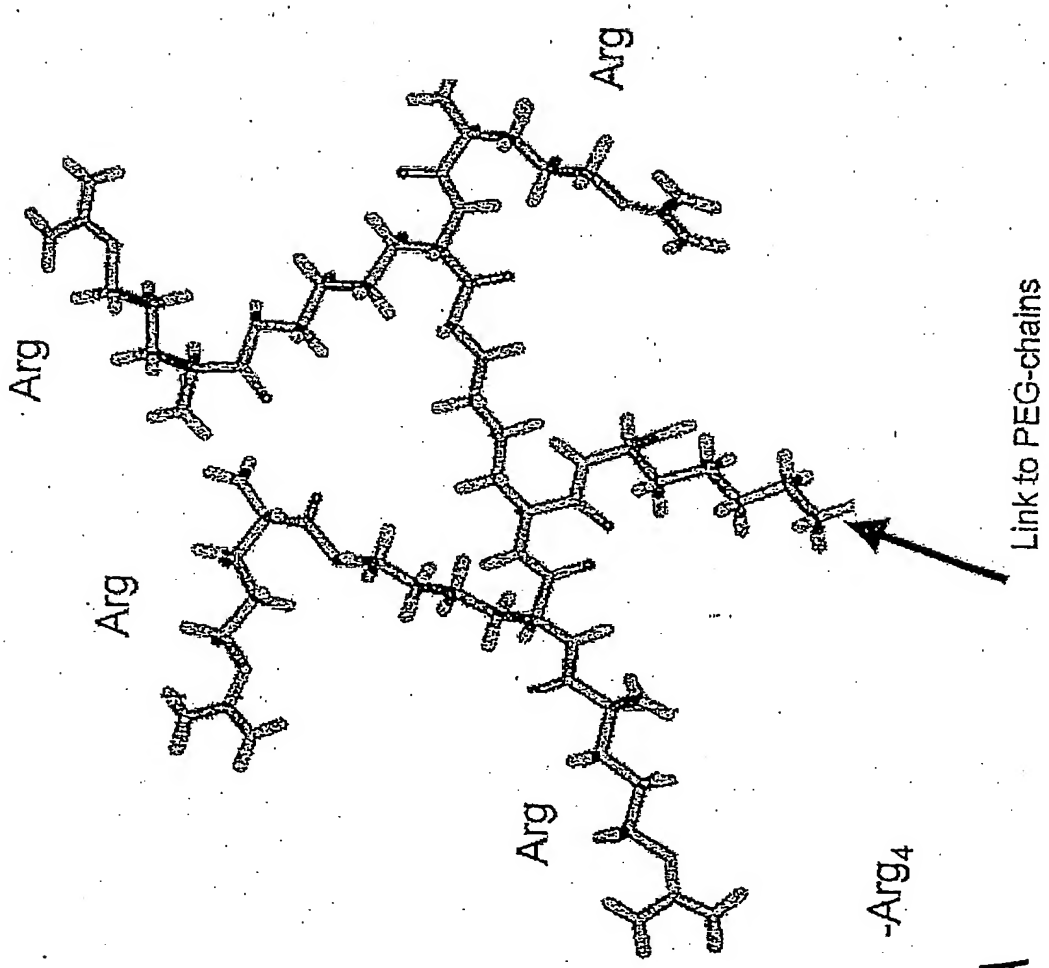


Fig. 11A

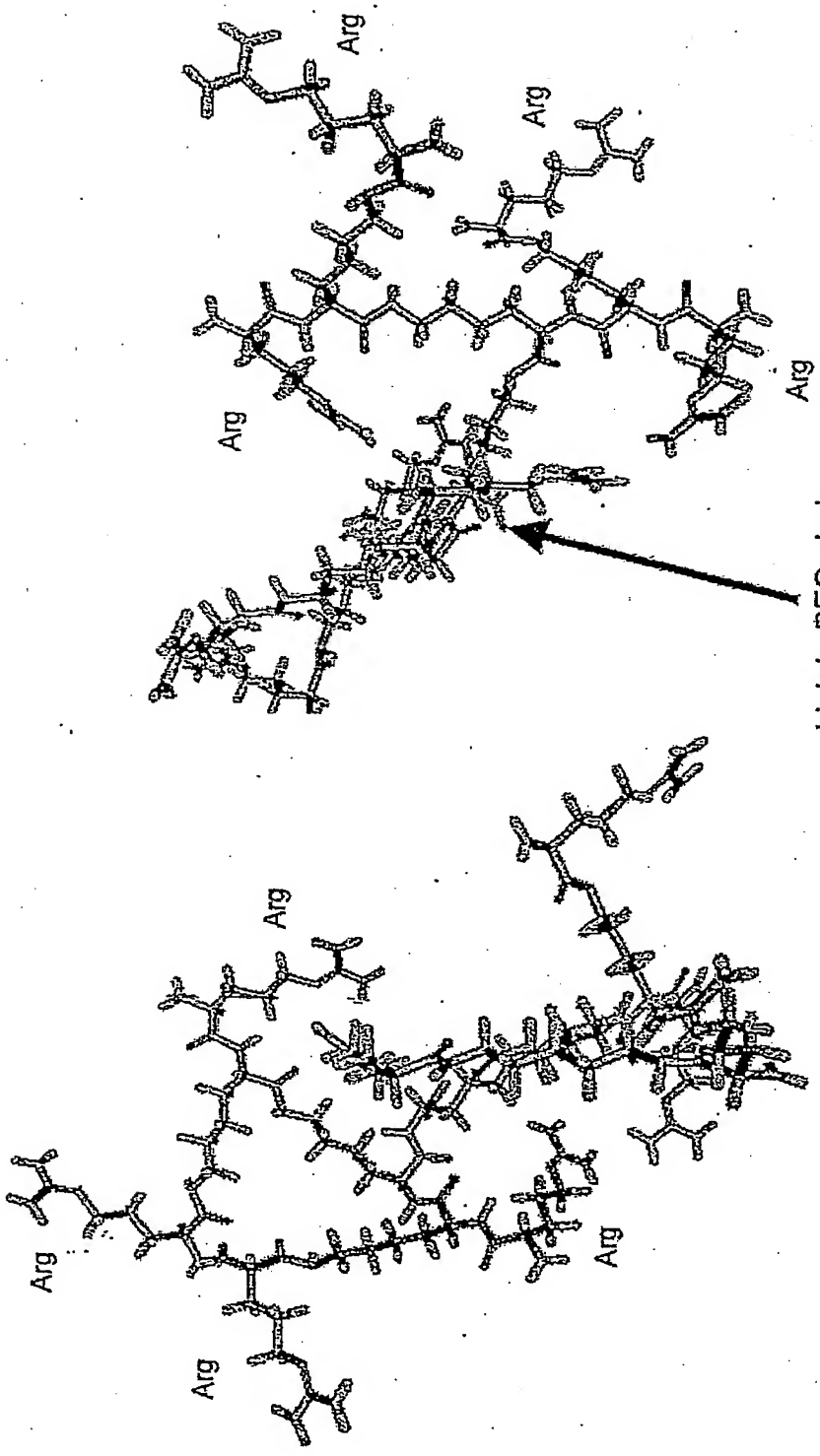


Fig. 11B

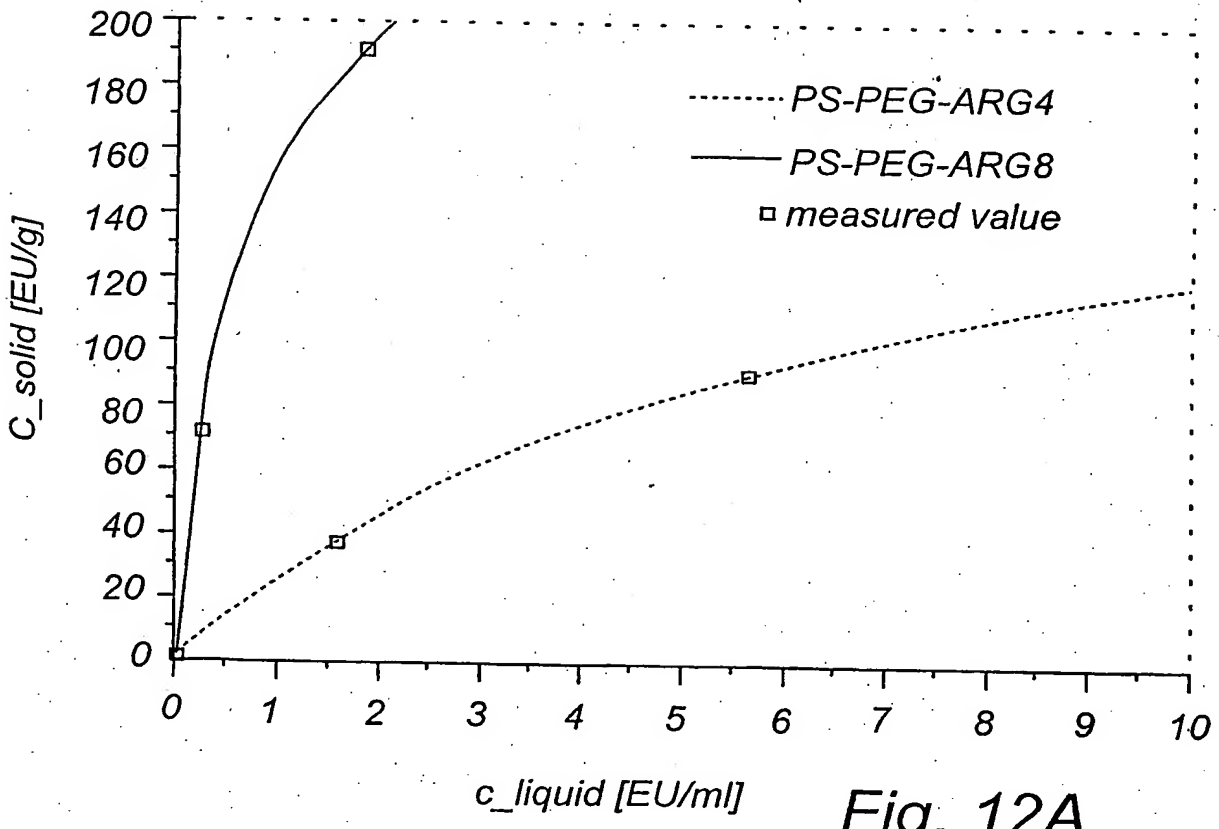

200
180
160
140
120
100
80
60
40
20
0
C_solid [EU/g]
0
1
2
3
4
5
6
7
8
9
10
c_liquid [EU/ml]
PS-PEG-ARG4
PS-PEG-ARG8
measured value

Fig. 12A

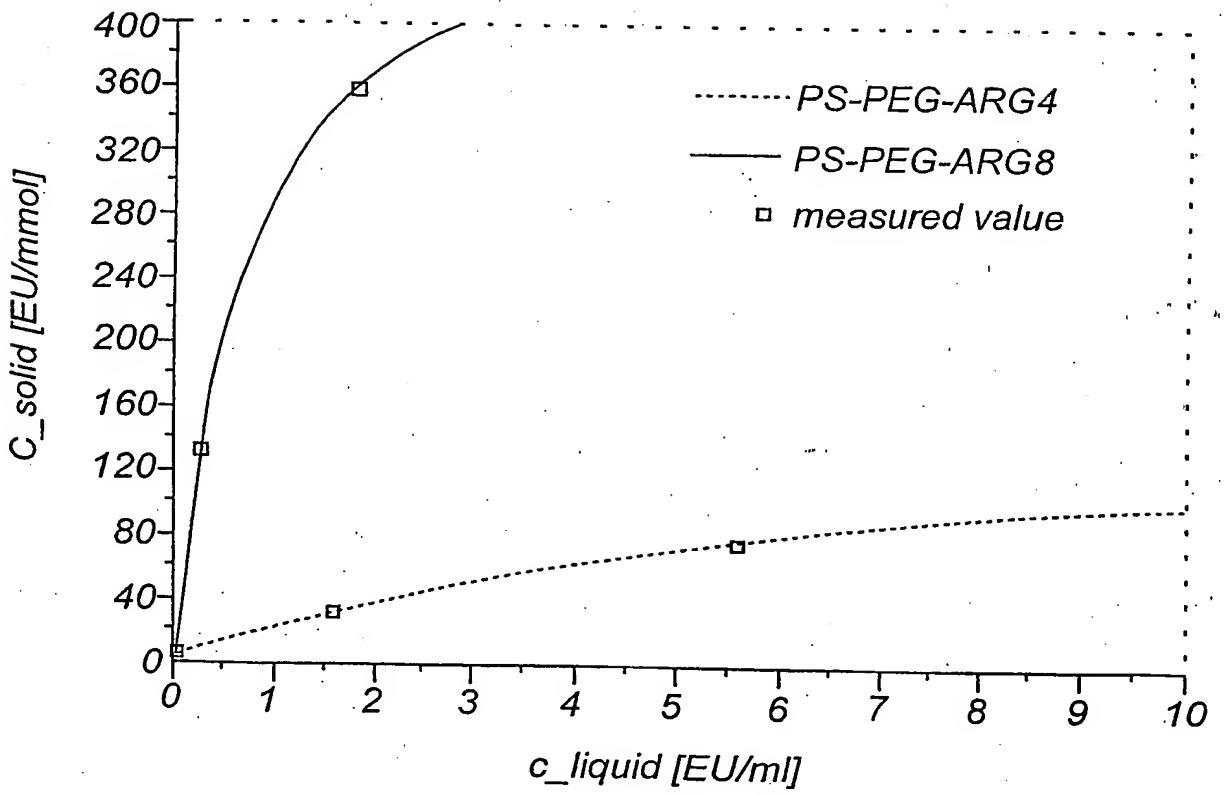

400
360
320
280
240
200
160
120
80
40
0
C_solid [EU/mmol]
0
1
2
3
4
5
6
7
8
9
10
c_liquid [EU/ml]
PS-PEG-ARG4
PS-PEG-ARG8
measured value

Fig. 12B